Amendments to the claims (this listing replaces all prior versions):

1. (currently amended) ~~A method comprising~~

~~conveying light from a moving light source on a writing instrument as an indication of a location and path of the writing instrument on a two-dimensional writing surface,~~

~~sensing the light at each of two or more sensors each comprising a linear array of sensitive pixels and generating a sequence of signals representative of the sensed light,~~

~~calculating from the signals positions of the light only along the linear array of each of the two or more sensors, each of the positions at a resolution that is higher than a pixel resolution of the sensor along the linear array of the sensor, and~~

The method of claim 21 also comprising applying a technique to increase a stability of the positions.

2. (Original) The method of claim 1 in which the technique is based on optics.

3. (currently amended) The method of claim 21 [[1]] in which optics are configured to enhance the uniformity of signal response of the sensors.

4. (Previously Presented) The method of claim 3 in which the optics comprise a spherical lens.

5. (Previously Presented) The method of claim 3 in which the optics comprise an aspheric lens.

6. (cancelled)

7. (Original) The method of claim 3 in which the sensors comprise analog sensors.

8. (Original) The method of claim 1 in which the technique is based on algorithmic processing of the generated signals.

9. (Original) The method of claim 8 in which the algorithmic processing comprises mapping the signal response of the sensors based on parameters associated with the writing instrument.

10. (Original) The method of claim 8 in which the technique is also based on optics.

11. (cancelled)

12. (Original) The method of claim 1 in which the technique is implemented in digital hardware.

13. (Original) The method of claim 1 in which the technique is implemented in analog circuitry.

14. (Previously Presented) The method of claim 1 in which the technique comprises an algorithmic technique that also reduces an effect of variations of intensity of the light based on other than dimensional effects.

15. (currently amended) The method of claim 21 [[1]] in which

the sensors comprise pixel arrays,

the signals are grouped in frames, and

the ~~technique~~ method also comprises processing of multiple frames to cancel noise and increase a stability of the positions.

16. (cancelled)

17. (currently amended) The method of claim 21 also comprising ~~1 in which~~

~~the light conveyed from the light source is modulated at a frequency, and~~

chopping the sensor signals ~~are chopped~~ at the modulation frequency ~~of modulation~~.

18. (currently amended) The method of claim 17 ~~in which~~ also comprising applying opposite gains ~~are applied~~ to each of the chopped signals depending on the on or off state of the light conveyed from the writing instrument that corresponds to the signals.

19. (currently amended) The method of claim 17 ~~in which~~ also comprising varying the modulation frequency ~~is varied~~.

20. (Original) The method of claim 18 in which the chopped signals are integrated over time.

21. (currently amended) ~~The method of claim 1 in which the~~ A method comprising

receiving, from a writing instrument, light ~~conveyed from the light source~~ including [[es]] ~~a strong short pulse imposed on~~ a modulation frequency, ~~and~~

sensing the light at each of two or more sensors each comprising sensitive pixels and generating a sequence of signals representative of the sensed light,

~~a phase lock loop~~ determining [[es]] the modulation frequency from the sensor signals using a phase lock loop, ~~and~~

~~the~~ sampling a sensor signal ~~is sampled~~ at the times triggered by the phase lock loop ~~during the duration of the strong short pulse~~, and

determining a location of the writing instrument based on the sampled sensor signals.

22. (currently amended) The method of claim 21 [[1]] in which characteristics of the conveyed light are used for synchronization between the light source and the sensors.

23. (currently amended) ~~The method of claim 1 in which~~ A method comprising

receiving, from a writing instrument, ~~the conveyed~~ light including [[es]] periods of lower frequency modulation and bursts of higher frequency modulation,

sensing the light at each of two or more sensors each comprising sensitive pixels and generating a sequence of signals representative of the sensed light,

using the ~~and the~~ sensor signal associated with the higher frequency bursts ~~is used~~ to lock onto a modulation clock, and

determining a location of the writing instrument based on the sampled sensor signals.

24-27. (cancelled)

28. (currently amended) The apparatus of claims 33 or 34 [[27]] in which the optics comprise a ball lens or an aspherical lens.

29. (currently amended) The apparatus of claims 33 or 34 [[27]] in which the optics include a single spherical lens and the lens and the corresponding sensor are together configured to enhance the optical power of light received at large angles or longer distances or at disadvantageous positions of the writing instrument.

30. (currently amended) The apparatus of claims 33 or 34 [[27]] in which the optics include a special lens configured to enhance optical power of the light received from a location on the X-Y surface that is beyond a predetermined position.

31. (currently amended) The apparatus of claims 33 or 34 [[27]] in which the optics include two cylindrical lenses, one nearer the sensor to project light horizontally onto the sensor, and the other positioned to collect light in the Z-axis dimension, the other lens having a body that is bent around the first lens.

32. (currently amended) The apparatus of claims 116 or 117 [[27]] also including algorithmic processes that enhance the immunity of the signals to variations in the intensity of the received light caused by distance from or tilt of the writing instrument.

33. (currently amended) ~~The apparatus of claim 32~~ Apparatus comprising

a sensor comprising a linear array of sensitive pixels configured to receive light from a moving writing instrument and generate signals representative of the light,

optics that are configured to enhance optical power of the light received from the writing instrument and that enable calculation of a position of the light along the linear array of the sensor at a resolution that is higher than a pixel resolution of the sensor along the linear array, and

algorithmic processes that enhance immunity of the calculation to instability in the signals and variations in the intensity of the received light,

in which the processes determine the integral power of the overall signal distribution on the sensor and calculate a position of the light at a resolution that is higher than the resolution of the pixels based on half of the integral power position.

34. (currently amended) ~~The apparatus of claim 32~~ Apparatus comprising

a sensor comprising a linear array of sensitive pixels configured to receive light from a moving writing instrument and generate signals representative of the light,

optics that are configured to enhance optical power of the light received from the writing instrument and that enable calculation of a position of the light only along the linear array of the sensor at a resolution that is higher than a pixel resolution of the sensor along the linear array, and

algorithmic processes that enhance the immunity of the calculation to instability in the signals and variations in the intensity of the received light,

in which the processes use a polynomial approximation on the signal distribution and calculate a position of the light at a resolution that is higher than the resolution of the pixels as a ~~position~~ function of approximated maximum.

35. (Original) The apparatus of claim 34 also including a calibration procedure to produce parameters to be used in combination with data from the sensors.

36. (Previously Presented) The apparatus of claim 35 in which the calibration parameters correct for non linearity of the sensors, and the algorithmic processes use a quasi triangulation technique to determine a position of the writing instrument.

37. (Previously Presented) The apparatus of Claim 36 in which the calibration parameters correct for non linearity of the sensors and the algorithmic processes determine the position of the writing instrument using polynomial series, and coefficients in these polynomials are determined during the calibration procedure.

38-101. (Cancelled)

102. (currently amended) The method of claim 21 ~~101~~ in which ~~the location is determined by~~ calculating the positions comprises

determining an integer pixel location that is closest to ~~the~~ a location along the linear array at which the maximum intensity of light has been received from the writing instrument, and

finding a fractional center of gravity of a subarray that is centered on the integer pixel location.

103 – 112. (Cancelled)

113. (new) A method comprising

receiving light from a moving light source on a writing instrument as an indication of a location and path of the writing instrument on a two-dimensional writing surface,

sensing the light at each of two or more sensors each comprising a linear array of sensitive pixels and generating a sequence of signals representative of the sensed light, and

calculating from the signals positions of the light along the linear array of each of the two or more sensors at a resolution that is higher than a pixel resolution of the sensor by

determining the integral power of the overall signal distribution on the sensor, and

calculating a position of the light based on half of the integral power position.

114 (new) A method comprising

receiving light from a moving light source on a writing instrument as an indication of a location and path of the writing instrument on a two-dimensional writing surface,

sensing the light at each of two or more sensors each comprising a linear array of sensitive pixels and generating a sequence of signals representative of the sensed light,

calculating from the signals positions of the light along the linear array of each of the two or more sensors at a resolution that is higher than a pixel resolution of the sensor using a polynomial approximation on the signal distribution and calculating the positions as a function of approximated maximum.

115. (new) The method of claim 113 or 114 in which the calculating also includes using algorithmic processes to enhance the immunity of the signals to variations in the intensity of the received light.

116. (new) An apparatus comprising

a sensor comprising a linear array of sensitive pixels configured to receive light from a writing instrument moving across an X-Y writing surface, the light including a modulation frequency,

a phase lock loop configured to determine the modulation frequency from signals generated by the sensor, and

optics that enable calculation of a position of the light along the linear array of the sensor at a resolution that is higher than a pixel resolution of the sensor along the linear array,

in which the sensor signal is sampled at times triggered by the phase lock loop.

117. (new) An apparatus comprising

a sensor comprising a linear array of sensitive pixels configured to receive light from a writing instrument moving across an X-Y writing surface, the light including periods of lower frequency modulation and bursts of higher frequency modulation, and

optics that enable calculation of a position of the light only along the linear array of the sensor at a resolution that is higher than a pixel resolution of the sensor along the linear array,

in which the sensor signal associated with the higher frequency bursts is used to lock onto a modulation clock.

118. (new) The apparatus of claims 116 or 117 in which the optics are configured to enhance optical power of the light received from the writing instrument.

119. (new) The method of claim 21 in which the times triggered by the phase lock loop are during the duration of the strong short pulse.

120. (new) The apparatus of claim 116 in which the times triggered by the phase lock loop are during the duration of the strong short pulse.

121. (new) The method of claim 21 in which determining the location comprises calculating positions of the light on each of the sensors at a resolution that is higher than a pixel resolution of the sensor.